

(19) World Intellectual Property
Organization
International Bureau



PCT

(10) International Publication Number
WO 2005/049584 A1

(51) International Patent Classification⁷: C07D 241/46,
C25D 3/38

(21) International Application Number:
PCT/EP2004/012851

(22) International Filing Date:
9 November 2004 (09.11.2004)

(25) Filing Language: English

(26) Publication Language: English

(30) Priority Data:
103 54 860.2 19 November 2003 (19.11.2003) DE

(71) Applicant (for all designated States except US):
ATOTECH DEUTSCHLAND GMBH [DE/DE];
Erasmusstrasse 20, 10553 Berlin (DE).

(71) Applicants (for US only): GRIESER, Olanda (heir
of the deceased inventor) [DE/DE]; Leuthinger Weg 5,
13591 Berlin (DE). GRIESER, Christopher (heir of the
deceased inventor) [DE/DE]; Leuthinger Weg 5, 13591
Berlin (DE).

(72) Inventor: GRIESER, Udo (deceased).

(72) Inventors; and

(75) Inventors/Applicants (for US only): BRUNNER, Heiko

[DE/DE]; Relaisstrasse 100, 68219 Mannheim (DE).
DAHMS, Wolfgang [DE/DE]; Hermsdorfer Strasse 53 A,
13437 Berlin (DE).

(74) Agent: EFFERT, BRESSEL UND KOLLEGEN;
Radickestrasse 48, 12489 Berlin (DE).

(81) Designated States (unless otherwise indicated, for every
kind of national protection available): AE, AG, AL, AM,
AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN,
CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI,
GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE,
KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD,
MG, MK, MN, MW, MX, MZ, NA, NI, NO, NZ, OM, PG,
PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY, TJ, TM,
TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM,
ZW.

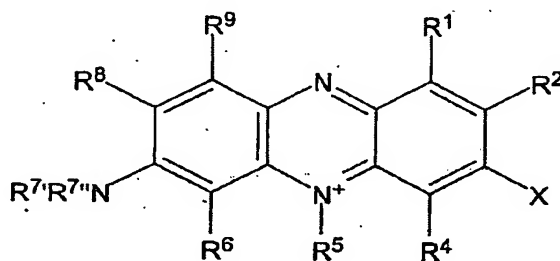
(84) Designated States (unless otherwise indicated, for every
kind of regional protection available): ARIPO (BW, GH,
GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM,
ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM),
European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI,
FR, GB, GR, HU, IE, IS, IT, LU, MC, NL, PL, PT, RO, SE,
SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,
GW, ML, MR, NE, SN, TD, TG).

Published:

— with international search report

[Continued on next page]

(54) Title: ACIDIC BATH FOR ELECTROLYTICALLY DEPOSITING A COPPER DEPOSIT CONTAINING HALOGENATED
OR PSEUDOHALOGENATED MONOMERIC PHENAZINIUM COMPOUNDS



A⁺ (I)

(57) Abstract: For manufacturing particularly uniform and mirror bright copper coatings that are leveled and ductile as well using a relatively high current density, halogenated or pseudohalogenated monomeric phenazinium compounds or a purity at least 85 mole-% and having the general chemical formula (I) are utilized in which R¹, R², R³, R⁴, R⁵, R⁶, R⁷, R^{7'}, R⁸, R⁹, X and A⁺ have the significations denoted in the claims. The compounds are prepared by diazotizing a suited starting compound prior to halogenating or pseudohalogenating it in the presence of mineral acid, diazotization means and halide or pseudohalide, with the reaction steps being run in one single vessel.

WO 2005/049584 A1